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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/019,285	01/02/2002	Alfred Bubik	P21775	7957
7055	7590	04/13/2004	EXAMINER	
GREENBLUM & BERNSTEIN, P.L.C. 1950 ROLAND CLARKE PLACE RESTON, VA 20191			HUG, ERIC J	
			ART UNIT	PAPER NUMBER
			1731	

DATE MAILED: 04/13/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No. 10/019,285	Applicant(s) BUBIK ET AL.	
	Examiner Eric Hug	Art Unit 1731	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 04 March 2004.
2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 85-131 is/are pending in the application.
4a) Of the above claim(s) _____ is/are withdrawn from consideration.
5) ☒ Claim(s) 107-110 is/are allowed.
6) ☒ Claim(s) 85-92, 98-106, 113-125 and 127-130 is/are rejected.
7) ☒ Claim(s) 93-97, 111, 112, 126 and 131 is/are objected to.
8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
10) ☒ The drawing(s) filed on 02 January 2002 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|---|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Continued Examination Under 37 CFR 1.114

A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on March 4, 2004 has been entered.

Claim Objections

Claim 97 is objected to because it should depend on claim 93, 95, or 96, not claim 85. Appropriate correction is required.

Claim Rejections - 35 USC § 103

The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

Claims 85-92, 98-106, 113-125, and 127-130 are rejected under 35 U.S.C. 103(a) as being unpatentable over Halmschlager (EP 0 933 473) in view of Bubik et al (US 4,417,950) or Armstrong et al (US 4,425,187). Patent family member US 6,267,846 has been relied upon as the English translation equivalent for EP 0 933 473.

Halmschlager discloses a twin-wire former for a fibrous web comprising two endless wire belts (11, 12) that converge to form a gap, a flowbox (headbox 26) positioned at the gap

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inlet, a rotating dewatering element (30) where the two wires converge, a fibrous web formed between the two wires, dewatering elements (37) positioned downstream of the rotating dewatering element, a first deflection device (deflection roller 42), a separation suction device (15), and a suction roller (33). The flowbox is angled with respect to the horizontal, as shown in the Figures and described in column 4, lines 44-67. The flowbox may be directed upwardly, as shown in Figure 1, or downwardly as shown in Figure 2. The two wires are arranged to run over the rotating dewatering element and then downward at an angle of $10-50^{\circ}$ to the vertical over dewatering elements 37 (column 6, lines 8-18). The two wires pass beneath the lower vertex of the deflection roller 42. Deflection roller 42 deflects the two wires in a generally horizontal direction. The separation suction device 15 separates the top wire from the bottom wire and from the web disposed on the bottom wire. After separation of the wires, the upper wire is led away back towards the inlet gap. The suction roller 33 serves as a second deflection device over which bottom wire and the web travel (over the upper vertex) and then guided in a downward direction. The difference between the twin-wire former of Halmschlager and that of the present invention is that in Halmschlager the two wires are arranged to travel horizontally between two deflection devices rather than being arranged to be run upward at an angle to the horizontal, with the upper vertex of the second deflection roll being located higher than the lower vertex of the first deflection roll. In Halmschlager, the two deflection devices are at about the same horizontal plane.

Bubik discloses a twin-wire machine having many of features of the machine of Halmschlager. Particularly in Figure 5 (see also column 6, lines 23-32), the twin-wire machine has two endless wires that form a gap, a stock inlet (10), dewatering devices (5, 22), a

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downward run of the two wires over the dewatering devices, a first deflection devices (deflection roll 13), a separating device (30'), and a second deflection device (deflection roll 14). After the first deflection roll, the two wires are directed at an upward angle rather than horizontally. After the two wires separate, the upper wire travels upwards and back to the gap inlet. The bottom wire and web travel up over the second deflection device and then downward to a web transfer point. It can be seen in Figure 5 that the upper vertex of the second deflection device is above the lower vertex of the first deflection device. One advantage of having an upwardly takeoff of the two wires from the first deflection device (arising from the relative positions of the two deflection devices) is that there is an increased wrap-around angle at both deflection devices. Large wrap around angles are favorable for increased dewatering action at the first deflection device. Having a large wrap-around angle at the second deflection device ensures good web adhesion to the lower wire.

Armstrong is provided as additional evidence of the desirability of having the wires ascend from a first deflection device towards a second deflection device. In Figure 3 of Armstrong, two wires with a web in between are guided about a deflection device (deflection roll 37) at a large wrap angle and upwards towards a suction roll 6, which serves as a second deflection device. A suction box 21' is disposed between rolls 37 and 6 to separate the two wires and ensure the web follows the lower wire (see column 6, lines 33-47). It can be seen in Figure 3 that the upper vertex of the second deflection device is above the lower vertex of the first deflection device. As in Bubik above, there is a large wrap angle about the first deflection device.

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Therefore, at the time of the invention, it would have been obvious to one skilled in the art to position the deflection rolls of Halmschlager in a manner whereby the lower vertex of the first deflection device is lower than the upper vertex of the second deflection device, so that the two wires are directed upwardly from the first deflection roll, thereby resulting in increased wrap angle about the first deflection device and thereby providing the advantages described above.

The features described above read on at least the claimed twin-wire former of claim 85 and the claimed process of claims 129 and 130. The dependent claims are addressed as follows:

Claim 86, 91-92: As described above, the flowbox of Halmschlager can be oriented downward or upward at an angle relative to horizontal. The angle clearly can be less than 30⁰.

Claims 87: As described above, the dewatering element is a rotating dewatering element (30). This rotating dewatering element is a forming roll.

Claims 88-90, 114, 115: The relative height between the upper vertex of the second deflection device and the lower vertex of the first deflection device in both Figure 5 of Bubik and Figure 3 of Armstrong are on the order of the diameter of the forming roll, therefore is much greater than the claimed 200mm.

Claims 98, 99: The upward angle that the wires run after the first deflection device is clearly between 10-90 degrees to the horizontal, as shown in Figure 5 of Bubik and Figure 3 of Armstrong.

Claim 100-102: Halmschlager discloses additional dewatering elements including a forming shoe 36 having a plurality of drainage strips 34 and a source of suction 29'. Opposing the forming shoe on the other side of the two wires are forming strips 38 that are flexibly pressed against wires and a catch basin 39' which also may be attached to a source of vacuum. See

column 5, line 42 to column 6, line 7. Since these devices operate with a constant vacuum, they are isobaric dewatering elements. The dewatering elements may also or alternatively comprise balanced-pressure drainage element 16, and 17. Elements 16 comprise stationary plate segments and elements 17 comprise plate segments that are flexibly pressed by pneumatic means (selectable force) against the wire. See column 7, lines 1-32.

Claim 103: In Halmschlager, Figure 1, a flat suction element 37' is located after the separating device 15. It acts on the bottom wire carrying the web.

Claims 104-106: The angle of downward run of the bottom wire after the second deflection device is clearly less than 25 degrees, as shown in Figure 1 of Halmschlager, Figure 5 of Bubik, and Figure 3 of Armstrong.

Claim 113: In both Bubik and Armstrong described above, the second deflection device is a suction roll that allows the bottom wire and web to travel around the roll at a large wrap angle and also provides for additional web dewatering.

Claims 116, 117: In Halmschlager, the first deflection roll 42 is a closed roll and the separation device 15 is a suction element. Also, Bubik shows equivalently in Figure 5 a closed roll 13 and suction element 30, and Armstrong shows equivalently in Figure 3 a closed roll 37 and a suction element 21'.

Claims 118-120: The diameter of the forming roll of Halmschlager is disclosed to be between 1.5 to 2.5 meters.

Claims 121-122: Halmschlager discloses that most of the dewatering takes place at the forming roll, and that it is desirable to remove as much water as possible at the forming roll to obtain strong webs. Therefore, the dewatering capacity of forming roll is likely to be greater

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than the claimed 60% of the total dewatering capacity of the twin-wire former. Although this is not expressly disclosed, the dewatering capacity is an optimizable variable. Therefore, the claims are unpatentable, because it has been determined by legal precedent that the discovery of an optimum value of a known result effective variable without producing any new or unexpected results is within the skill of the routineer in the art, *In re Boesch*, 205 USPQ 215 (CCPA 1980).

Claims 123-125: The forming roll of Halmschlager is an open, suction forming roll which may have a honeycomb structure (column 5, line 66 to column 6, line 7).

Claims 127-128: Bubik teaches a low overall former height is desirable, and that the overall height of the former is a result of the location of the first deflection roll being about the same level as the dewatering roll. Therefore, the height of the twin-wire former is considered to be an optimizable variable. The claims are unpatentable because it has been determined by legal precedent that the discovery of an optimum value of a known result effective variable without producing any new or unexpected results is within the skill of the routineer in the art, *In re Boesch*, 205 USPQ 215 (CCPA 1980).

Allowable Subject Matter

Claims 107-110 are allowed.

Claims 93-97, 111, 112, 126, and 131 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

The following is a statement of reasons for the indication of allowable subject matter:

Claims 107-110 are allowed for reasons presented previously.

Claims 93-97 and 131 are allowable for additionally providing a felt, a press section, and a web pickup point following the second deflecting device, whereby the web pickup point is above the lower vertex of the first deflection device.

Claims 111 and 112 are allowable for additionally providing a forming device after the second deflecting device.

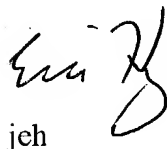
Claim 126 is allowable for specifying that the diameter of the first deflection device is greater than the diameter of the forming roll or the diameter of the second deflection device.

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Any inquiry concerning this communication or earlier communications from the examiner should be directed to Eric Hug whose telephone number is 571 272-1192. The examiner can normally be reached on Monday through Friday, 10:00 AM to 6:00 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Steven Griffin can be reached on 571 272-1189. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).


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